ANALYTICAL AND BIBLIOGRAPHICAL NOTICES.

Art. XXIII.—*Contributions relating to the Causation and Prevention of Disease, and to Camp Diseases; together with a Report of the Diseases, etc., among the Prisoners at Andersonville, Ga.* Edited by Austin Flint, M. D. 8vo. pp. xviii., 667. New York: Published for the U. S. Sanitary Commission, by Hurd and Houghton, 1867.

The object of this and the other volumes which are to be published under the auspices of the U. S. Sanitary Commission, is, we are told in the preface, "the diffusion and permanent availability of important information, acquired during the war, relating to the grand object of the labours of the Commission, namely, to lessen the evils of warfare as far as possible by the systematic and efficient employment of sanitary measures." The present volume is restricted, as indicated by the title, to topics pertaining to *medicine* in the restricted use of the term, that is, as distinguished from surgery, and is divided into three sections. The first contains contributions on subjects relating to general pathology. The second, is devoted to special pathology. While the third consists of an elaborate report by Prof. Jones, on the diseases, etc. prevailing among the prisoners confined at Andersonville. The other principal contributors to this volume are Prof. Roberts Bartholow, Drs. A. J. Phelps, Sanford B. Hunt, Elisha Harris, E. S. Dunster, Ira Russell, J. M. Da Costa, and S. W. Mitchell. In addition to the contributions furnished by these gentlemen there are expressions of opinion on various points by many other distinguished physicians, who were, in various ways, connected with the army during the late war.

Prof. Bartholow contributes no less than five chapters: two are in the first section, the remainder in the second. The first chapter treats of "The Various Influences affecting the Physical Endurance, the Power of Resisting Disease, etc. of the Men composing the Volunteer Armies of the United States." The volunteers were either Americans, Irish, Germans, Negroes, or Spanish Americans. Dr. Bartholow believes that so far as aptitude for military service and power of endurance go, the American race is decidedly superior, and the Spanish American inferior to the other races which occupy intermediate positions in the order they have been placed above. "The mental characteristics," he says, "that fit the American for the military service consist of a spirit of enterprise and an intellectual hardihood, which render him superior to fatigue; an easy bearing under defeat, and a buoyant self-confidence which misfortunes do not easily depress. * * * * * * The physical qualities which fit the American for military service consist, not so much in muscular development and height as in the toughness of his muscular fibre, and the freedom of his tissue from interstitial fat, whereby active and prolonged movements are much facilitated." Various subjects are of course discussed in this paper, which may, for the sake of convenience, be comprehended in four groups, namely: 1. The influences in operation previous to enlistment; 2. The causes affecting the physical stamina of the recruit subsequent to enlistment; 3. The causes affecting the physical stamina of the soldier in active service; and 4. Moral causes, as malingering, desertion, nostalgia, etc., in operation during the whole period. This paper appears to have been carefully written, and contains much information, but unfortunately it is not of a nature to be very readily analyzed.

The second article contributed by Prof. Bartholow is on the "Effects of a Malarious Atmosphere as regards Physical Endurance; Agency of Malarial Poisoning upon Diseases, and the Results of Surgery; Relation of Malaria to the Diarrhœa and Pulmonary Maladies of the Camp, and to Success in the Conservative Treatment of Wounds."

Dr. Bartholow is inclined to think that there are really two cognate, but independent poisons confounded under the term malaria. One producing intermittent, remittent, and congestive fevers; the other, various anomalous affections which may or may not be periodical; exposure to the latter, if there is really a separate and distinct poison, produces degeneration of the organs and tissues of the body, and in this way affects the physical endurance of the men. The degeneration which is thus induced, we are told, is the amyloid or albuminoid. Frerichs admits that he has seen a few cases of this form of degeneration of the liver, where it could be traced to no other cause, but at the time his treatise on diseases of the liver was written, attention had not been directed to the fact that the albuminoid degeneration frequently follows profuse suppuration. Now, profuse suppuration must have been so common in the army, either from wounds or from inflammation of the intestinal tract, that we think the albuminoid degeneration which appeared to depend upon malaria, is sufficiently explained by the probable antecedent suppuration. Certain it is that in this latitude there is no such complication of the malarial fevers. A case is cited to show that the malarial cachexia retards the union of fractures and predisposes to pyæmia.

Appended to this paper are the opinions of several surgeons favourable to the use of quinia as a prophylactic.

The third paper, from the pen of the same writer, is on Camp Fevers—Remittent, typhoid, typho malarial or malarial typhoid, common continued, and mountain fever, and is made up of a free criticism of Dr. J. J. Woodward's views of the nature of camp fevers, and contains little original matter on this subject. We are told that the several forms of fever—typhoid, typhus, simple continued, and remittent—"preserve as distinct clinical features in the army as the same forms of disease in civil life." An opinion, from which, we venture to affirm, the majority of army surgeons will dissent.

Prof. Bartholow's fourth paper is headed "Camp Measles." One hundred cases, apparently unselected, are carefully analyzed. Of this number only fifteen had slept upon straw since enlistment; he therefore rejects Dr. Salisbury's fungus theory in explanation of the origin of measles. The eruption was distinct in sixty-five cases; not so well marked in the remaining thirty-five. Death occurred in twenty-eight cases, in two of them before the appearance of the eruption. Desquamation was a more distinctly marked process than in civil life, and chest complications were more frequent. Delirium, laboured and rapid action of the heart, and purpura, are mentioned as among the symptoms. Vomiting was rare, but diarrhœa existed in two-thirds of the cases.

Appended to the chapter is the "Testimony of Medical Officers respecting the Prevalence, Fatality, etc. of Camp Measles."

Dr. Bartholow's fifth and last contribution is an account of "The Acute Rheumatism of the Troops in New Mexico."

Dr. A. J. Phelps contributes some "Remarks on Various Circumstances relating to the Causation of Disease, especially among the Volunteer Troops, based on personal Observation in the Field during the years 1861-65."

This chapter contains a great deal of interesting matter, being a history of Dr. Phelps' own experience in the field.

Dr. Sanford B. Hunt contributes four chapters, the first of which is devoted to the discussion of "Army Alimentation in relation to the Causation and Prevalence of Disease." Dr. Hunt compares our army ration with that of other armies, and finds that it is badly distributed, and sums up its errors briefly as follows:—

1. "In making fat pork or bacon a substitute for fresh beef, and thereby reducing the nitrogen of the ration below starvation point. 2. In making salt beef a substitute for fresh beef. It is not an equivalent. 3. In making compressed vegetables a substitute for eight times their weight of starches. 4. In an excessive quantity of carbonaceous foods, and a deficiency of the saline elements. 5. While the variety of carbonaceous foods may not be too great, they are unduly cumulated. A system of rotation should be substituted."

It is well known that food that appeases the appetite is not always sufficiently nutritive, and the mistake was made in our army of supposing that one kind of food could replace another; thus in what is known as the pork ration, the carbonaceous food is in excess, while the nitrogenous is deficient, the quantity of nitrogen being only 164 grs. Now 200 grains of this element are actually essential to prevent starvation, and between 350 and 400 grains to maintain a soldier, in what is known as the athletic constitution. The amount of carbon necessary to avert starvation diseases is estimated at nine oz. and about thirteen oz. daily will maintain the soldier in good condition. Dr. Hunt is further led to believe that starch will not replace fat; as there is reason to believe that the latter requires more oxygen for its combustion, it probably has more heat producing powers. But even with the proper amounts of nitrogenous and carbonaceous food, scurvy would occur if the salts generally furnished by fresh vegetables and fruits were not obtained in the proper proportion. The following is suggested as a good ration: Twenty ounces of beef, four ounces of pork, sixteen ounces of flour, one half pound potatoes, and two and a half ounces of beans, with eight ounces of fresh vegetables. This would furnish 15.169 ounces of actual carbon, about 390 grains of nitrogen, and 11.55 ounces of component salts, exclusive of common salt and coffee.

The discussion of the army ration naturally led Dr. Hunt to the consideration of the subject of his second paper, "Scurvy in its Medical Aspects." The third article contributed by this gentleman is one on "Camp Diarrhœa and Dysentery." Of course, in the production of these diseases, scurvy is found to play a prominent part, but other causes are not without their influence, for diarrhœa is found to prevail most extensively, and to be most fatal, where malaria is most rife; thus, the army stationed in the Southern States suffered more than that stationed in the Western States, and this, in its turn, more than that in the Middle States. It is a rather curious fact that the armies in the East suffered less than those in the West; thus in the isotherm of 48°, the mortality in the New England States was one in every forty-nine patients, while in Wisconsin and Iowa it was one in nine. The isotherm of Washington is also the isotherm of Cincinnati and Louisville, yet the former had a mortality of only one in every eleven cases, while the latter had a mortality of one to every nine. At Fortress Monroe the mortality was one in seven; at Memphis, in the same isotherm, it was one in five.

Appended to this paper are "Extracts from communications by medical officers respecting diarrhœa and dysentery."

The subject of Dr. Hunt's remaining contribution to this volume is "Cerebro-Spinal Meningitis." The paper contains a very great deal of useful information, and, we think, will generally be thought a very valuable one. The disease was found to attack the young and robust more frequently than the old and debilitated, and to begin abruptly, in many instances, so as to create the impression of poisoning. In some few instances, it is true, slight malaise was complained of, but in the great majority of cases the soldier continued at his post until suddenly stricken down. Petechiæ do not appear to have been by any means a constant symptom, and their presence does not make it necessary to hold that the blood is primarily diseased. The records of sixty-eight autopsies were carefully examined, and were found to present positive evidence of inflammation of the membrane of the spinal cord and brain. When any disease of other organs was found, it was evident that it was a mere accidental complication.

Dr. Elisha Harris is the author of two articles, the first "On Vaccination in the Army; Observations on the Normal and Morbid Results of Vaccination and Revaccination during the War, and on Spurious Vaccination." Experience has demonstrated the necessity, not only of vaccinating, but also of revaccinating, all recruits; this is well known in Prussia, where the army mortality from variola has been reduced to a minimum by the compulsory revaccination of all soldiers, although the vaccination of infants is rendered necessary there by law. The Surgeon-General of New York, Dr. Vanderpoel, inculcated the necessity of vaccination immediately after enlistment, and in consequence of his orders, 9248 men were vaccinated; of this number, 7586 exhibited some evidence of previous vaccination, but among them were found 1551 who were susceptible to vaccination—a complete demonstration of the wisdom of his order.

It was, however, unfortunately the case that a great many accidents followed vaccination performed on the soldier, so that the belief became wide-spread in the army that impure virus had been used. Similar accidents, also, were occasioned by vaccination in the South. And it will be recollected that the Confederates were at one time accused of wilfully using crusts, taken from syphilitic patients. Dr. Harris is inclined to believe that syphilis was never intentionally communicated in this way, but that vaccination was sometimes the means of syphilitic inoculation, he does not doubt. In the great majority of cases, however, the ulcers and abscesses which followed vaccination were undoubtedly of scorbutic origin, or due to the fact that the virus had been taken from a vesicle which, from some cause or other, had been accompanied by suppuration in the adjacent tissue. An instance is given where very disastrous results followed in every case where the virus from one man was used, and in the following way. "About the middle of December, 1863, the patients in general hospital at Benton Barracks, were vaccinated in the following manner: the surgeon in charge directed Dr. Klüber, the acting assistant surgeon in charge of ward E, to vaccinate the patients of his ward from the arm of a patient who appeared to have at that time—the eighth day from his vaccination—a genuine vaccine vesicle. The duty was performed as ordered, and the vesicle was excessively drained. The next day the same man was ordered into another ward for similar service, with his then irritated arm, and all the occupants of that ward received a charge in their arms of what was presumed to be vaccine lymph. The succeeding or third day, the same man was taken into another ward, and lent his inflamed and now purulent vaccine sore to the patients there. This was the tenth day after his own vaccination. In successive days he was still kept moving through the remaining wards for the same unfortunate service." The occupants of ward E were not seriously affected by the vaccination, but all those who received inoculation after irritation of the vesicle had taken place, suffered much from local inflammation, obstinate ulcerations, and lymphatic inflammations and swellings. For these, and other reasons, Dr. Harris advises that the lymph used in vaccinating soldiers should always be obtained from infants, for although there is reason to believe that syphilitic contamination of virus employed in the army was infrequent, and there is no absolute proof that genuine vaccine lymph acquires the inherent virus of syphilis, some of the evidence upon this point is so strong and significant, that it seems to amount to probability, and to warrant the conclusion that, to vaccinate with virus taken from a person infected with syphilis, or having syphilitic eruptions or sores, is culpably hazardous, and that to neglect to ascertain the health of the child or person from whom vaccine virus is obtained, is inexcusably wrong.

Dr. Harris's second contribution is on "Yellow Fever on the Atlantic Coast, and at the South, during the War." Very good histories of the epidemics of yellow fever at Wilmington, N. C., at Key West, and the Dry Tortugas, at Newbern, and at Hilton Head, are given in this paper, but that part of it which treats of the measures taken to exclude the fever from New Orleans during the Federal occupation will, we think, be read with the most interest.

Our limits prevent us from giving as full an abstract of this chapter as we should like, and we shall have to content ourselves with saying that, under General Butler's rule it was clearly demonstrated that the pestilence may be successfully warded off by a rigid quarantine, and great attention to cleanliness. The summer of 1862, 1863, 1864, and 1865, passed without any sign of yellow fever epidemic, and it cannot be claimed that there was, during the summers above mentioned, any favouring circumstances, either as regards dryness or humidity, to account for such hygienic changes. How large a part filth plays in the causation of this disease, is shown by the fact that it was not uncommon on the crowded, filthy, and ill-ventilated gunboats that were at anchor in the river before New Orleans; only the soldiers who were employed to remove the patients from the gunboats to the hospitals were affected with the fever, and a few other cases occurred in the immediate vicinity of the landing. Dr. Harris hence concludes that had the same sanitary care been extended to these vessels, the fever would not have occurred; and he further believes that the poison of the disease certainly originated on board of them. In places other than New Orleans, the fever was evidently of exotic origin. Little is said of either the pathology or the therapeutics of the disease.

One of the most instructive papers in the volume, "The Comparative Mortality in Armies from Wounds and Disease," is contributed by Dr. Edward S. Dunster, late assistant surgeon U. S. A. Even yet we are scarcely alive to the fact that most of the soldiers who died while in the army, were victims of disease, rather than of the bullet or the sword. Every government has been anxious to suppress the knowledge of this fact, as it must tend to diminish the ardor of enlistment, and it is only lately that statistics have been open which enable us to discover how large a majority of deaths have been due to disease. Among the English, during the Crimean war, the mortality from disease was to that from wounds as 3.52 to 1; the mortality among the French showed almost exactly the same ratio. During the Mexican war there were seven times as many deaths from disease as from wounds, a fact which shows little fighting, and a bad sanitary condition. During the recent war, the mortality in our army from disease was to that from wounds as 1.90 : 1, a ratio which is exceedingly gratifying, and shows that, in spite of the malaria to which many of our men were for the first time exposed, the excellent sanitary regulations prevented disease from becoming wide-spread. It will be interesting to follow Dr. Dunster still further in his calculation: first, in regard to the relative mortality of the officers and men. It has been found that the officers are very much more apt to die from wounds, and less likely to die from disease, than the men; thus, in our own war, one officer was killed or died of his wounds, to about every eighteen men, while from disease there was only one death among the officers to every ninety deaths among the enlisted men. As the officers in complete organizations constitute about one twenty-fifth part of the whole number, it appears that the rate of mortality from disease among the enlisted men was nearly four times as great as among the officers; while, on the other hand, the death-rate from wounds was one and one-half times greater among the officers than the enlisted men. Different arms of the service suffered differently. In the cavalry, there were 26,405 deaths from disease, and 11,798 from wounds, or a proportion of 2.23 to 1. In the artillery, there were 12,832 deaths from disease, and 2122 from wounds, giving a proportion of six to one. In the infantry, there were 154,050 deaths from disease, and 81,169 from wounds, so that the proportion here is a little less than 2 to 1. These figures show that there is comparatively less danger from the casualties of battles in the artillery than in either cavalry or infantry, and somewhat less in the cavalry than the infantry. The coloured troops suffered very severely from disease, for, instead of the proportion of deaths from disease being to that from wounds as 2 : 1, as in the army, taken as a whole, it was in their case as 8 to 1. It will be recollected that Dr. Bartholow placed the negro after the white man in capability to perform the duty of soldiers.

We may safely conclude, therefore, "that the aggregate mortality in armies in time of war is very variable—depends upon the nature of the service, the susceptibility of the men to endemic influence, and, above all, upon the degree of exactness with which sanitary and hygienic measures are enforced."

Dr. Ira Russell contributes a History of an Epidemic of Pneumonia as it appeared among the coloured troops at Benton Barracks, Mo., during the winter of 1864, a well written paper, which contains several tables.

Dr. J. M. Da Costa contributes a paper, entitled "Observations on the Diseases of the Heart noticed among Soldiers, particularly the Organic Disease." Dr. Da Costa, it is well known, had special advantages in studying the diseases of the heart occurring among the soldiers. As a result of his observation he tells us that valvular disease was not a very common form of heart disease, but, when occurring, it was ordinarily found to be due to the same causes which are known to generate it in civil life. In thirty cases taken indiscriminately from his note-book, he found that there was a well-attested history of rheumatism in fifteen. In five there was reason to believe that the disease had existed before enlistment, and, in several of these, to have been caused by rheumatism. By two of the patients the disease was first noticed after heavy marching, and, by one, after a severe attack of diarrhœa. Four of the patients believed that they had had pneumonia, and attributed their cardiac trouble to that disease. In one case there was a history of measles, and, in the remaining two, no distinct cause was assigned.

Dr. Da Costa gives us in detail the history of the four cases in which pneumonia is said to have been the exciting cause, but which he regards as nothing more than a coincident disease, and says that, although idiopathic endocarditis is not generally admitted, he thinks these cases were really of this nature, the inflammation being probably excited by the violent exertions which the men were obliged to make.

In many of the above cases the patients first became aware of the affection of the heart after an illness, and were very apt to attribute it to the effects of the illness. This is explained by the fact that at such times there is very apt to be some derangement of the circulation, and consequent functional disturbance. Dr. Da Costa is disposed to think those cases suffer least in which there is least enlargement; or, to put the proposition in different words—there is little enlargement where there is little interference with the circulation. The history of a case of pericarditis is then given, in which there was reason to believe that pericardial effusion had lasted for nine months. Pericardial inflammation did not, however, present itself to his notice very frequently. On the other hand, hypertrophy independent of either peri- or endocardial disease, appears to have been very frequently met with. The histories of six cases are given in detail, and several other cases are alluded to. The signs, of course, do not differ from those of hypertrophy as it occurs in private practice; but it was more often accompanied by spitting of blood in the soldier, and by a greater amount of cardiac distress. In regard to the cause of this hypertrophy it was probably often due to the condition which was frequent in the army, and was generally known as irritable heart; it was, however, traced very frequently to an attack of fever, and was probably then due to the fact that the patient was returned to duty before the heart had fully recovered from the cardiac changes which take place in fever. Excessive action of a weakened organ is very apt to bring on hypertrophy with dilatation. Of course, there were a certain number of cases which originated in affections of the lungs and kidneys.

In regard to the prognosis of hypertrophy, Dr. Da Costa says that while he never saw a case recover entirely, he has seen many relieved; and in some cases there was reason to believe that there was actually decrease in the size of the organ.

The treatment recommended for hypertrophy is certainly simple; abstinence from all agents and avoidance of all causes which excite the heart, was, as far as practicable, enforced. No other medicine answered so well as a strong tincture of aconite, given in doses of two drops three times daily, and persevered in for months. The drug did not interfere with digestion, nor impair in the least the general health.

Dr. S. W. Mitchell contributes a chapter "On the Diseases of Nerves resulting from Injuries." It will be recollected that Dr. Mitchell, in conjunction with his colleagues Drs. Morehouse and Keen, wrote, in 1864, a book entitled, "Gunshot Wounds and other Injuries of Nerves," and that several papers on analogous subjects have been published by him individually or in conjunction with his colleagues, in the medical journals. Having, therefore, considered the more important points in gunshot and other injuries of nerves, he dwells more particularly in this paper upon matters which have not been fully discussed. After an injury to a nerve there is generally paralysis of motion and sensibility; both of these may last some time, but sensation is almost invariably found to return before motion. Dr. Mitchell is inclined to suspect that the fibres of motion and sensation are kept in bundles, and that their respective filaments are not uniformly distributed throughout the area of the nerve-trunk; and this arrangement, he thinks, would explain the resumption of function by one set of nerves, while the other set continues paralyzed. Tetanus has never been observed in those suffering from injuries of the nerves placed under Dr. Mitchell's care. This is undoubtedly due to the fact that he received his patients at a period when there was no longer danger from this disease. Choreal affections were, however, frequently noticed, and a very interesting case of choreal affection of the muscles of the right arm after amputation of the hand, is detailed in full. Neuralgia in distant parts may sometimes follow nerve wounds. Several cases in which paralysis was due to pressure upon the nerve in the axilla by the head of a crutch, are given. In some of these cases there was no impairment of sensibility. In some cases disturbance of the function of a nerve was noted where there had been no direct injury to it. In speaking of these cases, Dr. Mitchell says that "when a ball passes through a part, it not only destroys what lies in its track, but it disturbs the surrounding tissues for a distance whose radius is as yet undetermined. The effects which result are known to the French authors as 'local shock.' They consist, I presume, in a molecular dislocation of the atoms of parts, such as, in the case of a nerve, would, at least for a time, be fatal to its function." It is, of course, well known that paraplegia will sometimes occur in cases in which a ball has passed over the spine without breaking the bones.

The effects of nerve wounds upon the nutrition of the skin and its appendages, and the curious burning pain to which they give rise, and which is denominated causalgia, are described in full. From a study of the cases in which these changes occurred, Dr. Mitchell is disposed to think that there is reason to believe in the existence of a distinct set of nutrient nerve-fibres, whose implication in the wound occasions the alterations in question. While speaking of the effects produced by electricity, Dr. Mitchell mentions that in cases of partial paralysis depending upon certain pathological states of the spinal cord, an impression made on the skin of the limb requires some seconds to elapse before it is felt by the brain. In the worst case the time required was eight seconds, and in a case of spinal shock from fall it was five seconds. In the few cases of lesion of the nerve-trunks, in which this point was examined, there was so slight a retardation in time that it was with difficulty measured. In cerebral paralysis there is also some retardation in time. In conclusion, he says: "So far as I am aware, the retardation of electrical impressions by defects of conduction, even in wires of great length, is measurable only by fractions of seconds. But in the case of certain spinal lesions affecting the integrity of neural conduction, we have a delay of from five to eight seconds on a conductor not over four or five feet long. Does not this fact separate nerve force from electric force by a boundary wider than has yet been supposed to exist?"

We regret exceedingly our inability to follow Dr. Mitchell more closely in his descriptions of the nutritive changes produced by nerve lesions, and the treatment adapted to their cure. It may be interesting to add that the paper contains some additional notes of two of the most interesting cases reported in the book on Gunshot Wounds of Nerves.

In addition to the various subjects discussed above, there are several others which are treated of in a separate chapter. The Medical Committee of the Sanitary Commission addressed to a large number of medical officers who served in different sections of the country during the rebellion, a circular, containing questions relating to various influences affecting the physical endurance of troops and their power of resisting disease. From the answers obtained to this circular, we learn that the highest amount of physical endurance and the greatest power of resisting disease, exist during the period of life between twenty and forty; that veterans are superior to recruits in powers of endurance, and the city bred man to his fellow from the country; a fact which was as true of the Confederate as the Federal troops; and that a due allowance of hot coffee often acts as a most efficient restorative. The whiskey ration is almost universally condemned, except after unusual exertions, for with the exception of two, all the surgeons, twenty in number, who have given their opinion on this subject state their belief that it has no power to increase the physical endurance of the soldier, but on the contrary may produce an opposite effect.

The third section of this volume is wholly given up to Dr. Jos. Jones, formerly surgeon in the Confederate army, now Professor of Chemistry in the University of Louisiana, who occupies it with a report of his investigations into the causes and nature of the diseases prevalent among the Federal prisoners confined in Camp Sumpter, Andersonville, Ga. Full extracts from the first part of this paper having already been given in this Journal (see number for January, 1868, pp. 131–2), we shall proceed at once to discuss the diseases prevalent among the prisoners, and their causes.

The disease from which the prisoners suffered principally was scurvy in some of its forms, for the large mortality from bowel affection was undoubtedly due to the scorbutic condition of the patients. Prof. Jones mentions that in the huge mass of human excrement which covered the banks of the stream, he did not see one moulded stool, a fact which perhaps better than any other, will show the extent of the scourge; and to quote from the book, "Scurvy, arising from the sameness of food and imperfect nutrition, caused either directly or indirectly, nine-tenths of the deaths amongst the Federal prisoners at Andersonville. Of course, against the manifestations of scurvy, medicines, in the absence of proper diet, were powerless. Every wound, even the abrasion caused by the rubbing of a boot, rapidly became gangrenous. In this way, too, is to be explained the accidents which followed vaccination. It is well known that the authorities of the prison were accused of wilfully vaccinating the prisoners with impure or syphilitic virus. This accusation is characterized as malicious and false. Although strongly inclined to think that vaccination may be the means of inoculating syphilis, still as the same accidents happened in our own army, we prefer, for the credit of humanity, to accept Dr. Harris' statement that "the greater proportion of ulcers following vaccination, and popularly attributed to syphilis, were simply scorbutic ulcerations, or were sores resulting from inoculation by a non-syphilitic morbid poison."

Typhoid fever was not a prevalent disease among the prisoners, in fact the Confederate soldiers who composed the garrison suffered relatively much more severely. "During a period of six months, from March 1st to September 1st, 1864, 473 cases and 185 deaths from typhoid fever were recorded among the Federal prisoners, the number of the prisoners confined during this period being about 40,611. The per cent. of deaths from this disease amongst the Federal prisoners was 39.1. In the Confederate forces guarding the Federal prisoners, during the months of July and August, with a mean strength of 3755 officers and men, 102 cases of typhoid fever, with 38 deaths were recorded. The ratio of deaths to cases of typhoid fever was very nearly as great amongst the Confederate troops as amongst the Federal prisoners, being one death in 2.68 cases, or 37.2 per cent. of deaths. The ratio of cases of typhoid fever to the mean strength amongst the Confederate forces was, however, nearly three times as great as amongst the Federal prisoners; being in the former in the ratio of one case of typhoid fever in 36.8 men, or 2.71 per cent. of the entire command suffered with typhoid fever; and in the latter, one case of typhoid fever in 86 Federal prisoners, or 1.16 per cent. of the mean strength. The greater prevalence of typhoid fever amongst the Confederate troops is still further shown by the fact that these statistics refer in their case to only two months, whilst those of the Federal prisoners embrace a period of six months." It is rather singular, too, that the troops should have suffered more severely from the various forms of malarial fevers than the prisoners; for during the months of July and August 581 cases among the former were reported, or 15.4 per cent. of the mean strength, while during the six months previously indicated there were 2958 cases amongst the latter, or 7.2 per cent. of their mean strength. From all other diseases the Confederates suffered much less severely than the Federals.

Dr. Jones finds in the fact of the comparative exemption of the prisoners from typhoid fever, an argument against the theory of the origin of typhoid fever from exposure to the exhalations produced by the decomposition of feces and other animal matter. The prisoners, it is true, were more exposed than their guard to these exhalations, which would certainly seem to have been present in great abundance, but we must remember, however, that many of the men confined at Andersonville had served in the army for some time, and that a large number of them had had typhoid fever, either before or subsequently to their enlistments. Moreover, it is well known that the exhalations from feces in the open air, no matter how abundant or offensive, do not produce so virulent an effect as the emanations from a foul drain or water-closet within a house. The Confederate troops were, on the other hand, composed of conscripts, many of whom being mere boys, and for the first time exposed to the poison, soon contracted the disease. And it is a little singular, that while Dr. Jones shows us that the putrefying feces did not cause typhoid fever amongst the prisoners, he fails to explain its origin and virulence amongst the Confederates, for if contagion were the only means of propagation, it would have been more prevalent among the former than the latter, because they were more crowded. But can we leave altogether out of consideration the modifying influence which the almost universal scorbutic condition of the prisoners must have not only upon the disease itself, but also upon their susceptibility to its causes? In fact there is nothing more wonderful in the comparative immunity of the prisoners from this disease, than in their almost entire exemption from diseases of the chest, and from the various forms of malarial disease, the causes of which were present in as marked a degree. The slight prevalence of the latter affections may be explained by the crowding together of the prisoners; it being a well-known fact, that the poison of malaria is in some unknown way neutralized by the air of a city.

During the six months which this report covers, nearly 10,000, or, one-fourth of the prisoners, perished.

In addition to the above, Dr. Jones contributes a paper which treats of the "Prevalence and Fatality of Pneumonia and of Typhoid Fever in the Confederate Army during the War, 1861–65." Pneumonia was so frequent and fatal a disease in the Confederate army, that Dr. Jones urged upon the Surgeon General the importance and necessity of a thorough examination of the relative value of the different modes of treatment, employed by the Confederate surgeons. Some idea of the extent to which this disease and typhoid fever prevailed, may be gathered from the following:—

During nineteen months (January, 1862. to July, 1863, inclusive), the mean monthly strength was 160,231 officers and men. and the cases of diseases entered upon the field reports were, 1,057,349 in number; of the latter number pneumonia constituted 28,273. During the same period, 397,406 cases of disease and wounds were entered upon the hospital reports, and of this number, 15,542 were recorded as pneumonia. The disease was found to prevail most extensively in the army which operated chiefly in the elevated regions of Tennessee, Kentucky, Alabama, and Mississippi, and during the months of December, January, February, March, and April. As a general rule, on the other hand, there were fewer cases in August, September, and October, or, in other words, the number of cases diminished as the temperature became more elevated, and the vicissitudes of the season less marked. The mortality of the disease varied in different parts of the Southern States. In the army operating in South Carolina, Georgia, and Florida, it was 22.3 per cent.; in that around Mobile, one in 7.6 cases, in the Army of Tennessee, 18.2 per cent.; in the Staunton General Hospital, 22.9 per cent.; in the hospitals around Richmond 25.9 per cent. In the total cases occurring in a large number of hospitals in Virginia, the mortality was one in 3.78 cases. In the same hospitals the mortality from typhoid was 25.92 per cent., or one death occurred in every 3.85 cases. In the hospitals around Savannah, the mortality from pneumonia and typoid fever was considerably higher. The tables with which the paper is very liberally provided, show us also that as the war progressed, there was a progressive and marked diminution of the cases of typhoid fever, whilst the yearly fluctuation of pneumonia appeared to be chiefly dependent upon the vicissitudes of the climate. J. H. H.